HEARING IN HONOR OF ELMER B. STAATS
Retiring Comptroller General of the United States

HEARING

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HEARING IN HONOR OF ELMER B. STAATS
Retiring Comptroller General of the United States

MONDAY, MARCH 2, 1981

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND TECHNOLOGY,
Washington, D.C.

The committee met, pursuant to call, at 3 p.m., in room 2318, Rayburn House Office Building, Hon. Don Fuqua (chairman of the committee) presiding.

Mr. FUQUA. The hearing will come to order.

We have invited several former members to join us, and we are happy that Jack Wydler, who served some 18 years on this committee, and most recently as the ranking minority member, has come back to join us.

Jack, we are happy to have you to be with us once again.

Mr. WYDLER. I am delighted to be here, Mr. Chairman. You see I am sitting on the Democratic side because I notice under the new alinement, you need some help on this side.

Mr. FUQUA. Also we are happy to have a former member of this committee, Marvin Esch, who is from Michigan but is living in the Washington area. We are happy to have you back to join us today. You have worked with us and our witness on many occasions.

Mr. ESCH. Thank you. I stay on your left, but really, it is the right.

Mr. FUQUA. We invited some other members; some other members who may show up a little later. We do have Congressman Boland from Massachusetts who deals very closely, on the Appropriations Committee, with many of the things that come under this jurisdiction; and Eddy, we are happy to have you here today.

Mr. BOLAND. Mr. Chairman, I appreciate the invitation to join with your committee in this hearing in honor of Elmer Staats.

As I looked at the day you came to the Government service 42 years ago, and I might say, Don, that he is the only member of the executive department who is permitted to use the gym. We gave him that privilege many years ago. As a matter of fact, he looks as good today as he did when I met him—let us see, this is my 29th year, I recall his service in the OMB and as the Comptroller General of the United States.

For my part, let me say I know of no other public official who has been more believable in the years he has served in public life than Mr. Staats has been. During all that long period, the long period of 15 or 16 years he has served as Comptroller General of the United States, I think he has enjoyed better communication

and better rapport on this Hill than any public official that I am aware of since I have been here. I am delighted to welcome him here today in conjunction with your committee.

I know what he has to offer with regard to science policies, is something we ought to listen to. It is a very deep concern of ours. I am sure he is aware that science education in this year's budget was targeted for about $111 million, the Carter administration, and I think it had $87 million last year. It now has been targeted for reduction, the first reduction of $47 million, and one to come in the not too distant future, another $55 million, which will leave for science education $10 million. This seems to be a rather paltry sum for an activity that does command the attention of the Congress and ought to command the attention of Congress.

So, I welcome you here, Elmer. I am delighted to see you.

Mr. FUQUA. Thank you, Eddy.

As has been mentioned, later this week Elmer Staats will be completing his statutory 15-year term in office. Today we honor him for his wide ranging accomplishments. We also ask him to share with us some of his accumulated wisdom in the field of science and technology policy.

When he assumed his present high office in 1966, Mr. Staats brought to it his already vast experience in Government service, including service as Deputy Director of the old Bureau of the Budget under Presidents Truman, Eisenhower, Kennedy, and Johnson. He also brought to his office a strong background and a long-standing interest in Federal science and technology policies. He participated in the establishment of a number of the Government agencies which today are responsible for much of the Federal Government's effort to advance the Nation's science and technology.

As a result, Mr. Staats has been a friend of this committee in the best sense of the word. He has appeared before us on numerous occasions to give us the benefit of GAO's competent and professional work and of his own knowledge and judgment.

In the view of many in Congress, one of the major accomplishments of Elmer Staats has been the broadening of the concept of accountability as it applies to the programs of the Federal Government. Years ago the emphasis of the GAO was on fiscal accountability. In those days GAO's work consisted mainly of the careful auditing of the financial records of the Government and its contractors. Today, the GAO's view of accountability includes, as well, managerial accountability—the efficient use of resources in funds and manpower, and program accountability—the achievement of the intended results and benefits of Government programs. The emphasis on the additional aspects of accountability has been healthy, but has, as we all know, brought with it additional problems of reporting and paperwork. How to strike the proper balance between accountability and freedom in the support of science is one of the fundamental problems facing us now and in the future.

We have invited him today to speak on any aspects of national science policy which he would care to address. I hope he will feel free to address both some of the short-range and the long-range issues before us.

Before I call on Mr. Staats, and we will get to you, Elmer, before I call on you, in an informal fashion and deviating from what we

normally do in this committee, I would like to recognize the presence of Mrs. Staats in the audience. She has been here and has been a stalwart behind her husband and as has been said, for every great man, there is always a great woman standing behind him.

Thank you, Mrs. Staats, for your support and letting us share Elmer.

I would like to ask our ranking minority member, Larry Winn, if there are any comments he would like to make to his native and fellow Jayhawk.

Mr. WINN. Thank you, Mr. Chairman, it is a true pleasure for me to be here and pay a tribute to Elmer Staats. You stole my stuff by introducing Margaret. I will not point out that I think this is against the rules of the House if not of this committee, but I was going to break those rules and introduce her anyway.

The integrity and professionalism that he has brought to the office is unsurpassed. The GAO has, under Elmer's direction, performed an invaluable service to the Government, and in addition to working with Elmer at GAO, I have also had the pleasure of working with him at the Office of Technology Assessment. As a member of that body, he lent his wisdom and insight to the Board of Directors of the Office of Technology Assessment.

I want to take this opportunity to wish Elmer and Margaret the best of luck in the future, and I hope you will see fit to stay around Washington, because I know this administration or whatever the next administration, might be in need of your words of wisdom, and this committee needs your leadership and advice.

I thank you very much for your service, and I thank you very much, Mr. Chairman.

Mr. WYDLER. Will the gentleman yield to me?

Mr. WINN. I will be glad to.

Mr. WYDLER. I may have to leave a little earlier today, trying to make an airplane.

I just want to say this about Elmer Staats: He has done his job with distinction, and in this particular case, it is the man who has made the job. I am sure the position of Comptroller General is one which is held in high regard by all those in the United States of America, not because of the title of the job, and not because of the nature of the job, half as much as the nature of the man that made the job, as important as it is.

I think that is the tribute that I pay you and the thing that you leave to our country, and we are all very proud of you, Elmer.

Mr. FUQUA. Thank you, Jack. Elmer, we will be happy to hear from you in any fashion you choose.

Mr. STAATS. First of all, Mr. Chairman, I would like to simply say thank you to you and your colleagues for arranging to have me here today. This may sound like a mutual admiration society, but I want to in turn say how much we have appreciated the interest and support of this committee in the whole field of science and technology.

I leave the GAO with a good deal of mixed feelings. I have a feeling at times that I am leaving a lot of unsolved problems back there, but I am sure there will be others who can pick it up and carry it forward. I feel particularly comfortable in the caliber of the staff of the General Accounting Office. It is a very fine staff

and one which I think is wholly dedicated to trying to serve the Congress in its efforts to legislate and oversee the operations of the executive branch.

We have, of course, a very pleasant relationship with this committee, and I hope our efforts have been helpful to this committee.

My interest in this field goes back substantially to the World War II period. I recall Vannevar Bush's book, which was published in 1945, and his great concerns with basic research. I recall him saying one day, it is a good thing the war ended when it did, because we had just run out of all the applications flowing from basic research that had been accumulated over the years.

Basic research is one of the things which is absolutely essential, vital to the future of this Nation, and I think it was his foresight and others' who were associated with him at the time which set in motion the number of things which have developed since that time.

I worked closely with John R. Steelman in the report that he issued following World War II which established the Interdepartmental Committee on Scientific Research and Development. The National Science Foundation grew out of the Steelman report and Bush's book. There was a lot of difficulty in getting agreement as to the concept of how it should be structured and how it should be organized. But there was agreement, I think, in principle on the need for a great deal of independence in the establishment of the National Science Foundation. A problem developed by virtue of the fact that President Truman felt that it established too much independence and he had to veto the first bill. I was among those who was given the job of trying to put the pieces together, working with Bush and Conant and Harlow Shapley in the science community, and with Congressman Wolverton and Senators Saltonstall, Taft, and Magnuson, all who were involved in methods to develop an acceptable arrangement meeting the President's concern for accountability and at the same time provide a maximum degree of independence.

Even after the Science Foundation was established, there was a great deal of difficulty in reaching agreement on members of the Science Board, as to how it should function, what fields it should cover. I worked closely with them all through this period. Alan Waterman was brought in from the Office of Naval Research to head the Foundation. One of the reasons for the difficulty that developed both during the enactment of the legislation and subsequently was the fact that there was no agreement within the Government and the scientific community as to what the role of the Foundation should be.

The representatives of education were worried what would happen to the budget for education, those of agriculture were worried as to what would happen to agriculture research, the Defense Department was worried, and the Atomic Energy Commission was worried.

The only thing that really saved the Science Foundation was the day it was on the floor of the Senate, Senator Taft offered an amendment to limit the appropriation to $10 million. That $10 million appropriation was enough to relieve the concerns of all of those who felt that the new Science Foundation would somehow drain the budget resources from their favorite programs. That limi-

tation stayed on for about 3 years before the authorization limit was increased.

I also had, during this period, a great deal of work with the Advisory Committee on Aeronautics, a man named Hugh Dryden, very familiar to all of you here, a great man in the field of aeronautics. I had something to do with drafting the statute which created the AEC. I handled the budget for the AEC for about 3 years after it was established.

Later on, in 1950, there were a number of individuals on the outside who were concerned about the coordination of the work of the Government in the field of science. President Truman asked the Bureau of the Budget to give him some help in developing a recommendation as to how this coordination and advice should be brought about.

We made arrangements with a man named Bill Golden, who has been since very active in the science field, and at that time was an adviser to Lewis Strauss, to head up a study and develop alternatives that we could present to the President. Out of that study grew the position of science adviser. President Truman appointed Oliver Buckley, who had been president of Bell Labs, to assume that position. This was the beginning of the science advisory role to the President. It was shifted to the Office of Defense Mobilization in 1953 at the time of the Korean period, but subsequently during the Eisenhower administration Jim Killian played an influential role in getting the position of science adviser more institutionalized, and the President also set up the Science Advisory Committee which Jim Killian chaired.

As you know, later on when Sputnik came along, there was great concern that this symbolized a loss of leadership in the field of science to the Soviet Union. Out of this concern, the position was shifted back to the White House and Jim Killian was then appointed Special Assistant to the President for Science and Technology.

In the period that we are talking about here, there was concern in the Congress that this position was one which could not in any sense communicate with the Congress. Under the rules prevailing at that time, individuals on the White House staff were not permitted to testify before committees of Congress. I personally felt there was a good deal of merit to the argument that anyone in that position, who in a sense, was a spokesman for all the Federal science activities should have a role in advising the Congress and accounting to the Congress for his efforts. So I suggested that we needed to have an office which would be a Presidential appointment outside the White House. We brought to the Congress proposed legislation, creating the Office of Science and Technology. That was enacted in 1962, and subsequently there was created the Federal Council on Science and Technology. Jerome Wiesner was named head of the Office of Science and Technology, and also Chairman of the Council on Science and Technology.

As you know, later on the OST was abolished, then subsequently as a result of hearings held before this committee, the Office of Science and Technology Policy was established in 1976.

I cite this as sort of a short history of the organization of science activities in the executive branch. It covers a period roughly now of 35 or 36 years. We have come a long way since that time. The Sci-

ence Foundation budget is slightly more today than $10 million, as you know. The Science Foundation has played an amazingly important role not only in support, but in stimulation of basic research in this country. If I had any single word to leave with you, it would be by all means we should continue our strong support, for basic research, whether it be done by Government dollars or by stimulus in the private sector for use of private dollars.

As I see it, in the years ahead we are going to become more and more dependent upon science and technology. Energy of course is a dramatic evidence of the need to develop alternative energy sources. But I think almost an equally dramatic story can be made with respect to basic raw materials where we are dependent increasingly on foreign sources, and many of those sources are highly vulnerable.

We could mention many fields—water I think is almost as critical as energy in terms of a basic resource of this country.

In the part of the country where Larry Winn and I come from, it is the lifeblood of the country. The Midwest Research Institute made a study some time ago showing that something like 75 percent of the economy of Kansas City was agriculture-based. Here in this part of the world where the water table is declining, we have more and more problems of salinity because of the pumping. That problem is not limited to Kansas and the Midwest, it is a nationwide problem.

I cite this because it is another evidence of the importance of using science and technology to deal with what I think is a very fundamental problem.

The question of soil and food production may be equally important. We depend today primarily on agricultural exports to pay for the imports of petroleum, but we are losing our soil and we are losing the capability to produce food on the same competitive basis, the same growth and productivity that we have experienced in the last 20 years.

You could go on and on with a similar list of this type. Basic research gives rise to applied research, and applied research gives rise to technology. I think basic research among all three of these elements is by far the least expensive in terms of national investment. That would be the main point I would leave with you.

The other point I would make would be on the matter that we have discussed in this committee a number of times, of how do we decide as a nation how well we are doing in the field of science and technology.

The science indicators were, I think, a step forward. The periodic assessment which is provided for in the OSTP legislation, the 5-year outlook, is useful. I think the OTA can provide a useful role also.

But we need some systematizing as to the way we make judgments as to both the level of support, as well as the nature of the support the Federal Government is called upon to provide.

I believe this committee can play an important role here. One suggestion you recall that we discussed at an earlier meeting, was to explore whether this committee could formulate some of the questions and issues it would like to see addressed each year, have the science adviser have an opportunity to make his assessment of

these issues, then come before this committee and give the committee at least a systematized and organized assessment of how well we are doing.

The question comes up from time to time of whether or not the President should have a science adviser. When I was in the Budget Bureau, I felt a strong need to have that kind of input. It seems to me that science is such a pervasive type of concern to the whole Government that it deserves a place among the advisers to the President. It can play an important role in the budget formulation process in terms of level of support, and I think from time to time it can serve a very useful role for the President in dealing with certain major issues that come up in the science and technology field.

So, I would hope that the science adviser position would have the support of the new administration. I note that no one has yet been appointed to that position. I do not read into that any implication, but I do read from time to time questions as to whether or not this is an important function in the Executive Office. I personally think it is a vital function, and I hope very much it will continue and be strengthened.

I would like to see that Office have a bit larger staff than it has in the past. I do not believe it has to be a large staff, but I believe we could well afford to have a somewhat larger staff than that which has been provided for the Office in the past.

Those are a few observations, Mr. Chairman. I would be happy to respond to any further line of inquiry that you care to develop.

Mr. BROWN [presiding]. Thank you very much, Elmer, for those very penetrating remarks. It is not often that we have someone before us who can distill the results of 40 years or more of experience and give us the benefit of that.

I would like to call on Mr. Boland and ask him if he has any questions or comments he would like to direct to Mr. Staats.

Mr. BOLAND. I do not know whether the comment is relevant. One of the problems that has bothered me over the years since I have been looking at the NSF budget, and that has been for a long time now, as you have indicated, that budget has increased. I think the initial appropriation was $250 million to get the thing started. Now it is over $1 billion. One of the areas in which I have had some concern, and I think of the times you have perhaps disagreed with the thrust of this committee, the amount of money the National Science Foundation started to spend in applied research. This is something, as you know, NSF got into in the Nixon days where the program addressed national needs. The directorate changed to ASARA, and it has been changed again. That directorate has changed, I guess, probably four times in the last 14 years or so. My question is whether or not in your judgment that the National Science Foundation ought to be addressing these concerns when basic research is of such paramount importance.

Mr. STAATS. As you can tell from my remarks, I think the primary mission of the Science Foundation ought to be basic research. I think in some ways the program agency is in a better position to make the judgments with respect to the applied research area. I grant there is a very difficult line to draw—the definitional line as to what is basic and what is applied. But it seems to me that basic research and science education should be the primary concern of

the National Science Foundation. It can be one agency which can dedicate itself to that basic responsibility. I do believe that the Government has a basic responsibility here, because the payoff of this area as you know is so uncertain and so long term in character that private industry tends to favor applied research and development rather than basic research.

Mr. BOLAND. How would you describe the role or mission of the National Science Foundation in a couple of sentences?

Mr. STAATS. Well, it is obviously one of financial support, and both for basic research and science education. I had something to do with putting in the Science Foundation language, the responsibility also for making an assessment of the status of the national effort. By that we hoped that it could take the lead in working with the private sector. We did not have good information on what money was being spent by the private sector or universities in the field of basic research. So we saw NSF as being able to pull together the national picture in terms of basic research and science education.

I guess that would be my short answer to your question.

Mr. BOLAND. Thank you, Mr. Chairman.

Mr. BROWN. Thank you very much, Mr. Boland.

Mr. Winn.

Mr. WINN. Thank you, Mr. Chairman.

Elmer, you talked about the science adviser to the President. I think every time we get a new President, the question of whether there should be a science adviser comes up. That question is up again right now, although I understand the President has decided to name one.

What real true impact does and would a science adviser have to the President other than the formulation of science policy?

Mr. STAATS. Well, any Presidental adviser in my experience is effective only if he can have the confidence of the President and develop a good working relationship with him. That is true of the Director of the Budget or any other adviser to the President. But beyond that I believe there is an important coordinating function within the Government that the science adviser can take the lead in developing either directly or indirectly.

I have already mentioned the role I think he can play as an adviser to the OMB, as well as the advice he can give directly to the President. But very important I think is the assessment role that I mentioned a while ago, the responsibility that he can discharge by coming before this committee and other committees of Congress and try to take a longer look. The 5-year outlook. This sort of thing I think is very important because basic research in particular is so long term in character that you need to have someone who can develop a consensus in the science community as to the overall priorities in this field. I cannot think of anything more pervasive in the whole economy than scientific research and technology. The areas this country has been most dominant in in terms of world leadership have all stemmed from the fact there has been strong stimulus from the field of science and technology.

Agriculture goes back to the Morrill Act. The work we have done in computers goes back to work we have done with the Air Force and NASA. Take the aircraft industry. It has grown out of the Gov-

ernment support for the aircraft that the Government buys for defense purposes. These are all areas that the Government has had heavy involvement in. It has to do that in cooperation with the private sector. If we are to deal with the productivity problem in this country, which is very, very serious, if we are to continue to deal with the balance of payments growing out of oil imports, science and technology are important.

So, if you pick the single thing basic to the future of this country in importance, it has to be in my opinion the field of science and technology.

Mr. WINN. I did not want you to feel by my question I am against any President having a science adviser, because I think it is very important, very necessary.

I talked in my opening remarks of your experience as an advisory member of the OTA council. We have a problem somewhere, maybe communication or education, of trying to show members of Congress how important the Office of Technology is, and still we are an arm of Congress, members of the committee, individual chairmen, ask OTA to make studies, and you have participated in many of those on various subject matters, and still many Members of Congress do not seem to know what OTA does for it. Obviously that is a matter of continuing education on the part of some of us to continue to educate Members of Congress.

From your experience on the advisory council, have you any ideas as to how we can do a better job in being an arm of Congress in helping them to make those studies?

Mr. STAATS. I have given this some thought. Some of my thinking has been reduced to writing and communicating. I was involved when Min Daddario was chairman of the subcommittee which formulated legislation on the House side. If I had any suggestions to make it would be twofold. One, I would like to see more emphasis given to dealing with emerging problems where we are trying through science and technology to solve the problem but we do not really know what the answer is to the problem. Some of these are very long-term problems, such as the CO_2 problem in the upper atmosphere. Many of these are matters on which the Congress must make decisions, but we do not have a very good way of getting input from the scientific community. What I thought we were trying to get was to get hold of a problem like the SST or like the CO_2 problem, many of these other issues, to be sure there may not be any complete definitive answers, but at least to get the consensus of the scientific community as to what the options are and the potentialities might be.

I would like to see more emphasis given to the longer term issues.

The other, if there could be some way whereby the OTA could provide the mechanism to bring before this committee and other committees some of the individuals who are involved in the cutting edge of these problems, I think that would help not only to get OTA better known, but it would also do a great deal by way of giving the committees which have responsibility and jurisdiction the direct viewpoint of the scientific community without going through a formal process of hearings on particular legislation or authorizing actions. It could be a very useful role—a catalytic role.

Mr. WINN. Maybe another part of that question might be, how do we get Members of Congress to read the reports sent out by OTA.

Mr. STAATS. Sure, that would be desirable, but I think if you could identify specific major issues you would fill up this bench up there without much difficulty. Like most of us, we do not have time to read all these things, but if you have the right people on the right issues, I think they will come and participate in discussion.

Mr. WINN. There has been an attempt to relate the amount of R&D expenditures to the GNP. Do you think that is a reasonable comparison, and should it be used as an indicator?

Mr. STAATS. If you use the word indicator I may go along with that. I do not think it should be used as a formula.

I think the level of support has to be one which comes up from the agencies which have the responsibility in the basic research field, particularly NSF. You also have to relate to capabilities to carry out research. It is a chicken-and-egg proposition in some cases.

The universities do not have the capabilities or do not have those resources, and that has to be taken into account, also. But if you are going to relate it as an indicator, I would say take not only Government support, but get the picture of what is happening outside Government as well. It ought to be done on a national basis rather than what the Federal Government itself puts in. Additionally, for international comparisons, the indicator would be more useful if it factored out the varying levels of noncommercial—for example, defense, space—research by different countries.

Mr. WINN. Thank you very much.

Thank you, Mr. Chairman.

Mr. BROWN. Mr. Glickman.

Mr. GLICKMAN. Thank you, Mr. Chairman.

I assume that Mr. Winn has made appropriate notice of the fact that Mr. Staats is a Kansan. He was educated in my district, and I think born in my district, if I am not mistaken.

Mr. STAATS. I was not born there, but I lived there most of my life.

Mr. BROWN. You may reemphasize that point if you wish, Mr. Glickman.

Mr. GLICKMAN. I vicariously reemphasize it.

I would like to make two comments: One, to commend you personally for the fact I have never heard a bad thing said about you. I have only been here 4 years, but the fact that you have performed your job with excellence, which is something we may not see as much in Government as we should, is something you can take from this job and know that to people all over the place you symbolize excellence in government, and that is a quality I wish more people had. I say that in all sincerity and know most people agree with me on that.

When I was in Japan recently, this committee went over there, they too emphasized the fact to us that you Americans seem to be slipping on research. They emphasized that they were not, although it may not grow as fast as it had in the past, they still expected their efforts in both the private and public sector of R&D to continue.

Have you any thoughts as to what we have learned from the Japanese or West Germans as to how they approach the issues of scientific research and development?

Mr. STAATS. I cannot quote figures from memory, but in both Germany and Japan they have placed more emphasis on applied research and technology innovation development than they have on basic research. I think a lot of what they have came from this country, but they have applied it and they have found a way for the Government to work with the private sector in a way in which we have not done in this country.

In GAO we have been spending a lot of our energy in recent years on the subject of productivity within the Government itself and what the Government's role is with respect to productivity in the private sector. In almost all cases we have looked at where the Japanese have excelled, they have taken their technology from this country. But they have had a different kind of management process. They rely more on worker management committees more extensively than we do in this country, and they have built in quality controls in a way we have not done here.

We have been doing work with the House Ways and Means Committee as to the difference in the quality control approach we take here as against the Japanese. One of the interesting things that emerge from our studies is when they come to the United States and take over a plant using American workers the Japanese seem to get the same result as they do back in Japan. So it is a different management approach. It is not just something that is a part of the culture of the Japanese, in other words.

I think we have to learn something from them in this process. I think we are learning. I think you will find a number of the companies now have vice presidents for productivity—Westinghouse has one, GE, and many others. So I think we are finding a lot more concern with what companies are doing in attaining quality control within those industries. I really do not see the Japanese and Germans ahead of us in overall science if you want to put it in those terms. But I think they have done a better job of applying science in many areas than we have.

Mr. GLICKMAN. You mentioned before we have to look to the private sector, not just government. There are many people talking about in this era of inflation giving companies tax incentives to do research and development. There have been a lot of bills to do that, either a tax credit or tax deduction. I wonder if you have any thoughts as to whether that is a good way to do it and whether it would get any basic research done, or would it be applied research?

Mr. STAATS. The principle is one we support. It involves, like other tax expenditures, very little control. It is something they can then take and apply it. But it is a definite amount of money which can be identified.

Now the big question is this, will the increased expenditure simply substitute for money they would spend anyway? That same question comes up when we are talking about depreciation allowances or any other incentive built into the tax laws. I would say this is probably a better concept than putting it in the form of an appropriation, but you still need to have some oversight.

Mr. GLICKMAN. Thank you.

Mr. BROWN. Mr. Forsythe.

Mr. FORSYTHE. Thank you, Mr. Chairman, and Mr. Staats, I certainly welcome you here. This is a subject I think this Nation needs to spend an awful lot of time on, and we do not seem to have that kind of time. Actually, Mr. Glickman got into some of the things that I expected to get into with you, and this did have to do with this question of private sector incentive. I was wondering whether you would feel perhaps the best way to make use of the basic research which probably is going to best be done by the long-range operation of our science operation, in other words to do what Germany and Japan are doing with our basic research today, is separate that rather than having the same kind of incentive for basic as for applied research.

Mr. STAATS. The private sector story is about the same as the Federal Government story—a declining level for basic or long-term research for 10 years. The question is, Why is that happening in the private sector? Because of the tax laws? There are some who feel that Government regulation plays a part here, and some feel that it is because it is much easier for a big corporation to go out and absorb a high-technology small corporation than it is to put out the money for R&D directly which may or may not pay off.

I think there is something to be said for that argument. We ought to provide as much incentive as we can through depreciation allowances and direct tax incentives to invest in capital equipment. In my book that is a No. 1 priority. But I am not sanguine enough to say that is going to be the solution to our productivity problem. I think productivity improvement is partly a product of what you might call macro measures such as regulatory tax policy. But a lot of it will have to get down to sectors of the economy.

The Washington Post editorial this morning is absolutely correct. We have a basic problem in the automobile industry. I do not think anything you do on the tax laws will turn that situation around.

I have been on the Chrysler Loan Guarantee Board and we have been struggling with the automobile problem for some months. But I think the Post editorial is right, this is a basic, fundamental problem we have to address, and maybe we will end up with a smaller automobile industry than we have had in the past.

Then you have a third part of this, that gets down to the plant level. What I was saying to Congressman Glickman, is that we have not paid nearly enough attention to what can be done at the plant level by getting the labor and management people to work together to improve the output of those plants, give labor some voice in that. Whenever this has been tried, Westinghouse has tried it and many others have tried it, and it is paying off in a big way.

I was at Cincinnati Milicron not long ago and they have what they call quality work circles meeting all over the plant. These are supervisors and employees trying to figure out ways to cut costs and increase output. This is where I think the Japanese really have gotten way ahead of us.

Mr. FORSYTHE. I fully agree. You said our research and applying and running away with it, and their whole management relationship goes into this, and I am sure these holes are all over our

system, but God forbid that you are saying the Government bureaucrats will tell the private sector how to improve productivity.

One of the problems we have in major corporations now is something we have here in Washington; this is short-term management. Managers are going through these corporations very fast and they are looking at next year's balances. They do not want to put dollars in something that is not going to pay off in a few number of years when they are going to be holding that job. And I think it is one of our problems here. We on this side, our vision is awfully difficult to get beyond 2 years, and I am sure you are well aware of that. What is going to pay off 5, 6, 8, 10 years down the road is a little hard to buy for most of us. I hope I am not a part of that class, but I think it is part of an institutionalized problem we have. I hope this administration's target on capital formation and perhaps if they can add in other incentives for the use of research, this might help. I agree with you, productivity is the major problem. I do not think it is something you can legislate. It is more the symptom of a problem than it is a problem in and of itself.

Mr. STAATS. We do not really have a productivity improvement policy. I say that advisedly. We have pieces of a policy. We are spending now something over $2 billion a year spread around various departments and agencies which have as their objective technology innovation and productivity improvement. No one is really looking at those programs to determine what we are getting for that $2 billion or whether it is the right combination of money. I do not think we are talking about any new regulation or intervention in the economy, we are talking about ways the Government itself—its policies and programs—can work for productivity improvement and whether some things we do are actually counter to productivity improvement.

We need some focal point in Government now and we would like to see some such point established.

Mr. FORSYTHE. Thank you.

Thank you, Mr. Chairman.

Mr. BROWN. I would like to call on our good friend and former member of this committee, Mr. Esch.

Mr. ESCH. Thank you, Mr. Chairman. It is an honor to be back with you in this committee, expecially under the leadership of the new chairman and the ranking Republican. I am also honored to see that this committee still has its bipartisan approach and analytical approach to problems facing our country; and it is especially good to be here with such an honored witness.

I reflect back, Elmer, to those early days of your career that many of us in the room know about, and some in the room are too young to know about, but the days in the Vietnam war and the great work the GAO did under very trying times then. It was really a landmark investigation leading to a public policy discussion.

I would like to have you look ahead for the next 15 years and give us a minute or two perception of what you think the GAO might be doing in the next decade and a half, especially as it relates to some of the matters which we discuss now in terms of making Government more efficient and ways in which the GAO

might be effective in supporting public policy decisions of the Congress.

Mr. STAATS. As I see GAO's role—it performs several roles. But the highest priority I have felt would be to have GAO look at the payoff of programs. When I was appointed to this job, I asked President Johnson what he considered to be the function of the GAO. He had been in the Senate for a long time. His reply was that "when Congress passes a law and I sign it, it is your job to tell both of us whether that law is accomplishing what we intended it to accomplish."

I found that to be a good working definition of what GAO's role should be.

Interestingly, going back and looking at the history of the debate, which goes back to President Wilson and President Harding's day, you see the same statement of purpose and objective even though the GAO did not carry out that role for a great many years. But they were looking for something more than an organization which could be sure that the financial accounts were maintained. They were talking in terms of helping Congress with its legislative function, oversight function, looking at effectiveness of programs.

I see GAO's role most important in this area of looking at payoff of Government programs, cost-effectiveness. The 1974 Congressional Budget Act is a good charter for them. I think the charter is a very good one. I took steps about a year and a half ago to reorganize and regroup a portion of our staff in something called an Institute for Program Evaluation, in developing improved ways the Government could go about making assessments as to effectiveness of Government programs. I would see this as a good direction for the Congress and GAO to go. I had warnings years ago that this would get GAO into difficulty in terms of controversy. Certainly we are not infallible, but I think the fundamental point is for GAO to maintain its credibility.

Mr. ESCH. Thank you very much.

Mr. BROWN. Elmer, we do not want to keep you here unduly, but if I may raise a question myself which I have been concerned about for some time, and I am sure it is not new to you. I have been concerned about the effectiveness of what you might call our strategic policy analysis function, one that I think concerns you as far as the GAO is concerned and which gets involved in the science picture frequently, because the fruits of basic science research are changes 10, 15 or 20 years down the road in our society. As you pointed out, the basic discoveries leads to other discoveries and social changes. The question I have had is do we have an adequate mechanism for analyzing these? My conclusion is that we do not, and where if anywhere should such a function be? I occasionally am accused of trying to load this on the NSF, but it is equally important in the Office of the Science Adviser of the President.

You performed part of that role yourself in your effort to evaluate the effectiveness of what the Congress and Government were doing.

I would like you to comment on whether or not you feel we can do better in this regard, and if so, how?

Mr. STAATS. The obvious answer is we can do a lot better than we are doing. I am not sure that we need additional machinery beyond the OSTP. We have appeared here before in support of long-range planning. I think we need to move more in the direction of multiyear authorization of these programs. For one thing, it is essential to basic research to have some degree of stability of support. It is the kind of thing you cannot start and stop without a lot of damage to the work involved in basic research.

I think the 5-year analysis which is contemplated in the legislation is good, if it can be coupled with the kind of dialog which I described between the committee and OSTP and the Science Foundation. I do not see them as being in competition with each other. But the science adviser can go beyond a single agency which is more difficult for NSF to do. It has been my experience NSF is not in a position to coordinate or engage in joint planning with other agencies, as the Science Adviser's office should do. I think the machinery is there and the statute is a good one. It is a matter of making it work.

Mr. BROWN. I would have to concur with you that the machinery is there, but we have not really made it work as well as it should. Perhaps we need to examine ways to do that.

Mr. Chairman, I think we are just about through. Would you like to conclude the meeting at this time?

Mr. BOLAND. Could I ask one question? You talked about productivity spread throughout the establishment. How do you bring it together, and where would you lodge that problem?

Mr. STAATS. We have supported legislation which has been introduced in the Senate by Senator Bentsen and in the House by Congressman LaFalce and others which would create a productivity council, with a chairman appointed by the President and confirmed by the Senate. There he would be a part-time council made up of labor, management, and pertinent Federal agencies.

We need desperately some place where labor, management, and Government can sit down in some organized way to talk about the productivity problems.

We had such an agency for several years but it was allowed to die. We think that was a great mistake.

Mr. BROWN. May we pause briefly while the reporter changes paper.

Mr. Fuqua.

Mr. FUQUA. I apologize for having to step out.

I have just one question. Is there anything that Congress should be doing in the field of science policy and utilizing GAO that we are not using, and what does GAO have in addition to what we are using to offer this committee and the Congress in trying to wrestle with science policy?

Mr. STAATS. I would like to give that a bit more systematic thought before I try to comment off the cuff.

I guess we would like to see generally the same kind of focus over on the Senate side as this committee has tried to bring to science and technology on the House side.

But if I may, let me try to set something down for the record and be a little more responsive.

[The information follows:]

COMMENTS OF ELMER B. STAATS

I believe that the Congress has made good use of GAO's ability to evaluate management effectiveness and to a lesser extent program results of specific mission-oriented Federal research and development programs—for example, in defense, space, and energy. However, I believe that the Congress could make better use of GAO's growing capability to support congressional oversight and decisionmaking on science and technology issues that cut across agencies and program areas. During the last 7 years, my colleagues and I have testified many times before this Committee and its Subcommittees, and to a lessor extent other congressional committees, on a variety of such transcending issues. Topics we have addressed include: Federal organization for science and technology with special focus on Presidential science advisory mechanisms, research and development and the economy, patent policy, technology assessment, the Federal research and development budget and related policy issues, multi-year authorization of research and development, and long term planning for national science policy.

Three recent GAO reports also illustrate this kind of support to Congress: (1) Assessing the "Output" of Federal Commercially Directed R&D (PAD-79-69, August 27, 1979); (2) Science Indicators: Improvements Needed in Design, Construction, and Interpretation (PAD-79-35, September 24, 1979); and (3) The Office of Science and Technology Policy: Adaption to a President's Operating Style May Conflict with Congressionally Mandated Assignments (PAD-80-79, September 3, 1980). The first two reports were requested by the Chairman of the Joint Economic Committee and the last one by the Chairman of the Subcommittee on Science, Technology and Space of the Senate Committee on Commerce, Science and Transportation.

Issues such as those related to Federal involvement in science and engineering education, accountability for Government sponsored basic research, Government-university-industry relations in research, and the impact of Federal policies on private sector innovation require a cross-agency perspective. GAO can assist the Congress in consideration of issues such as these by assembling cross-agency data and program information and analyzing them to determine the nature, scope, and effectiveness of Federal involvement. GAO can also assist by comparing and contrasting approaches taken by different agencies and programs to identify policy issues and determine ways to improve the coordination of related interagency programs. Finally, GAO can evaluate alternative policy initiatives and report to the Congress on the likely consequences of particular policy choices. Over the past 2 years, we have been building further a small interdisciplinary staff to perform such studies on science and technology issues. You may have seen our recent report, "Major Science and Technology Issues" (PAD-81-35, January 30, 1981) which describes our current work and outlines selected issues which we believe warrant more analysis.

Mr. FUQUA. I realize it is rather broad, and I would appreciate that.

Mr. STAATS. If there are no more questions, I want to thank you for taking your time.

My appreciation to you and other members of the committee for having me here. I enjoy the discussion and enjoy speaking on this subject.

Mr. FUQUA. I am sure we will be calling on you again in whatever capacity you are in to come back and give us the benefit of your thoughts, views, and experience over many distinguished years in the Government service. We again thank you very much for the many years of cooperation that we have had and the valuable benefit you have been to us individually as well as collectively on this committee and in the entire Congress.

Mr. STAATS. My best wishes to you and best of luck to the committee.

Mr. FUQUA. Thank you very much.

The meeting stands adjourned.

[Whereupon, at 4:10 p.m., the committee was adjourned.]

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